

ABSTRACT OF THE DISCLOSUREMANUFACTURING PROCESS FOR A HIGH STRENGTH WORK HARDENED
PRODUCT MADE OF ALZNMGCU ALLOY

The purpose of the invention is a process for the manufacture of a work-hardened product made of a high mechanical strength Al-Zn-Mg-Cu aluminium alloy consisting of:

- 5 - casting an ingot made of an alloy with composition (% by weight) Zn = 9.0 - 11.0, Mg = 1.8 - 3.0; Cu = 1.2 - 2.6 at least one of the elements Mn (0.05 - 0.4), Cr (0.05 - 0.3), Zr (0.05 - 0.20), Hf (0.05 - 0.5), V (0.05 - 0.3), Ti (0.01 - 0.2) and Sc
10 (0.05 - 0.3), the remainder being made of aluminium and inevitable impurities,
 - possibly homogenisation of said ingot,
 - hot transformation of said ingot by rolling, extrusion or forging,
- 15 - solution heat treatment and quenching of the product obtained,
 - possibly controlled stretching with a permanent set between 1 and 5%,
 - annealing of the product at a temperature and
20 with a duration such that the product reaches the maximum compression yield stress in the L direction.

The invention is applicable particularly to upper wing members of aircrafts.

Figure 2

Légende des figures

| Français | Anglais |
|---|---|
| Seuil CSC | CSC threshold |
| Température (°C) | Temperature (°C) |
| Durée de revenu (h) | Annealing duration (h) |
| Mono-palier | Single step |
| Bi-palier | Two-step |
| Temps équivalent de revenu à 120°C (h) | Equivalent annealing time at 120°C (h) |
| Temps équivalent à 120°C (h) | Equivalent time at 120°C (h) |
| Tri-palier A | Three-step A |
| Tri-palier B | Three-step B |
| Temps équivalent de revenu à 120°C (h) | Equivalent annealing time at 120°C (h) |